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FAUNISTICAL AND ZOOGEOGRAPHICAL INVESTIGATION OF HETEROPTERA COMMUNITIES OF NORTH-HUNGARIAN MEDIUM HIGH MOUNTAIN RANGES

ABSTRACT: *Heteroptera* communities of localities with different bedrock, but same exposition and microclimate is compared by the authors. The aim of their investigation is ranking the collected *Heteroptera* species decording to zoogeographical faunal centruns.

Introduction

Permanent *Heteropterological* collecting in the North-Hungarian Medium High Mountain Ranges have been carried out since 1987. This study contains the analyses of collectings completed at two localities of the above mentioned territory: 1, Sár-hegy (Sár-hill), Mátra Mountains and 2, Nagy-Eged (Nagy-Eged-hill), Bükk Mountains. These two collecting sites are similar in their exposition, but different in structure and bedrock.

Sár-hill (500 m) is situated on the southern part of the Mátra Mountains and it has been a protected area since 1975. The chosen collecting sites are plant communities appearing on andésite bedrock {*Cynodonti-Festucetum pseudovinae*, *Diplachno-Festucetum sulcate*, *Stipa stenophilles* faciès and left grapeyards associations)

Nagy-Eged-hill (530 m) is situated at the southern part of the Bükk-Mountains, north-east from Eger, and it has been a protected area since 1975. The main body of the hill is built up from grey coloured *Triassic* limestone, but on the southern slopes of it you can find Eocene nummulitic-limestone, too. The plant associations of the examined territory are as follows: *Cleistogemi-Festucetum rupicola*, *Campanulo divergentiformi-Festucetum pallentis* and associations of abandoned grapeyards.

These two collecting sites can be characterised by southern exposure and approximately the same annual mean temperature (9-10 C°) and annual mean precipitation (530-550 mm). Due to the different bedrocks there are differences in their plant communities.

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During the collectings the following methods have been applied: hand picking, sweeping with a net, soil trapping. Collectings were carried out in May, July, August and September of 1994.

In the case of Sár-hill 644 specimens of 88 species have been found. While these numbers are 277 and 70 in the case of Nagy-Eged-hill.

There are 118 *Heteroptera* species have been found at the sampling localities. The number of the same species is 36 [Table I., II.]

Species on the sampling territories			
		Sampling territories	
Species		SÁR-h	NAGYEGED-h
<i>Prostemma guttula</i> (FABR., 1758)	EU	1	-
<i>Prostemma aeneicolle</i> STEIN, 1857	M	1	2
<i>Aptus mirmicoides</i> (COSTA, 1834)	EU	-	1
<i>Nabis rugosus</i> (L., 1758)	EU	2	7
<i>Nabis brevis</i> SCHOLTZ., 1846	EU	-	1
<i>Nabis fêrus</i> (L., 1758)	EU	6	1
<i>Nabis pseudoferus</i> REMANE, 1949	P-E	2	-
<i>Nabis punctatus</i> COSTA, 1843	EU	1	-
<i>Deraecoris ruber</i> (L., 1758)	H	1	-
<i>Deraecoris punctulatus</i> (FALL., 1807)	EU	-	1
<i>Adelphocoris lineolatus</i> (GZ., 1778)	P	-	4
<i>Adelphocoris vandalicus</i> (ROSSI, 1790)	M	-	3
<i>Capsodes gothicus</i> (L., 1758)	P	11	2
<i>Capsus ater</i> (L., 1758)	P	-	6
<i>Liocoris tripustulatus</i> (FABR., 1781)	EU	-	8
<i>Halticus luteiocollis</i> (PANZER, 1805)	M	-	3
<i>Lygus pratensis</i> (L., 1758)	P	-	5
<i>Orthops kalmi</i> (L., 1758)	P	-	1
<i>Brachycoleus sriptus</i> (FABR., 1803)	EU	7	1
<i>Calocoris ochromelas</i> (GMEL., 1788)	E	-	3
<i>Calocons biclavatus</i> (HERR.-SCHAFF., 1835)	E	-	2
<i>Strongylocoris leucocephalus</i> (L., 1758)	P	-	3
<i>Haplomachus thunbergi</i> (FALL., 1807)	P(M)	-	1
<i>Acalypta gracilis</i> FIEB., 1844	E	-	3
<i>Acalypta parvula</i> (FALL., 1807)	E	-	2
<i>Acalypta musci</i> (SCHRK., 1781)	E	-	1
<i>Lasiacantha capucina</i> (GERM., 1836)	M	12	5
<i>Dictyonota strichnocera</i> FIEB., 1844	P	1	-
<i>Catoplatus nigriceps</i> HORV., 1905	P	6	-
<i>Catoplatus carthusianus</i> (GUESE, 1778)	E	15	-
<i>Dictyla rotunda</i> (HERR.-SCHAFF., 1835)	M	19	-
<i>Dictyla echii</i> (SCHRK., 1781)	Eu	47	-
<i>Copium clavicorne</i> (L., 1758)	M	3	2
<i>Stephanitis pyri</i> (FABR., 1822)	P	2	-

I/B táblázat

Species		SÁR-h	NAGYEGED-h
<i>Pirates hybridus</i> (SCOR, 1763)	p	1	-
<i>Rhinocoris iracundus</i> (PODA, 1761)	p	1	1
<i>Reduvius personatus</i> (L., 1758)	Kp	-	3
<i>Phymata crassipes</i> (FABR., 1775)	M	1	4
<i>Aradus cinnamomeus</i> (PANZER, 1794)	p	1	-
<i>Neides tipularius</i> (L., 1758)	E	6	-
<i>Berytinus clavipes</i> (FABR., 1775)	EU	10	-
<i>Berytinus montivagus</i> (MEYER-DÜR, 1841)	M	8	-
<i>Spilostethus equestris</i> (L., 1758)	P	-	4
<i>Melanocoryphus albomaculatus</i> (GZ., 1778)	P(M)	2	-
<i>Horvathiolus superbus</i> (POLL., 1779)	M	-	7
<i>Nysius helveticus</i> (HERR.-SCHAFF.)	P(M)	1	-
<i>Ortholomus punctipennis</i> (HERR.-SCHAFF.)	p	7	-
<i>Ischnodemus sabuleti</i> (FALL., 1829)	p	9	5
<i>Platyplax salviae</i> (SCHILL., 1829)	Eu-N	-	2
<i>Metopoplax origani</i> (KOLENATI., 1845)	P(M)	7	-
<i>Rhyparocromus (Raglius) vulgaris</i> (SCHILL.,)	P	7	-
<i>Emblethis verbaschi</i> (FABR., 1803)	P(M)	3	-
<i>Trapezonotus quadratus</i> (FABR., 1798)	M	2	-
<i>Pyrrhocoris apterus</i> (L., 1758)	H	3	-
<i>Dicranocephalus agilis</i> (SCOP, 1763)	EU	3	-
<i>Dicranocephalus albipes</i> (FABR., 1781)	M	3	-
<i>Dicranocephalus medius</i> (MULSANT & REY, 1870)	E	2	-
<i>Gonocerus acuteangulatus</i> (GZ., 1778)	EU	4	5
<i>Syromastes rhombeus</i> (L., 1767)	P	8	2
<i>Coreus marginatus</i> (L., 1758)	P	8	6
<i>Spathocera lobata</i> (HERR.-SCHAFF., 1840)	M	9	5
<i>Bathysolen nubilus</i> (FALL., 1807)	E	4	-
<i>Phyllomorpha laciniata</i> (VILLERS, 1789)	M	31	-
<i>Coriomeris denticulatus</i> (SCOP, 1763)	E	10	-
<i>Ceraleptus gracilicomis</i> (HERR.-SCHAFF., 1835)	M	1	-
<i>Alydus calcaratus</i> (L., 1758)	EU	3	2
<i>Camptopus lateralis</i> (GERM., 1817)	M	1	5
<i>Corizus hyoscyami</i> (L., 1758)	P	2	3
<i>Rhopalus parumpunctatus</i> (SCHILL., 1817)	P	23	12
<i>Rhopalus conspersus</i> (FIEB., 1836)	EU	-	9
<i>Rhopalus subrufus</i> (GMEL., 1788)	Kp	2	5
<i>Brachycarenum tigrinus</i> (SCHILL., 1817)	M	4	-
<i>Stictopleurus punctatonevrosus</i> (GZ., 1778)	P	11	5
<i>Stictopleurus abutilon</i> (ROSSI., 1790)	EU	10	3
<i>Maccevethus lineola</i> (FABR., 1787)	M	-	4
<i>Myrmus mirmiformis</i> (FALL., 1807)	EU	3	-
<i>Chrosoma gracile</i> JOSIFOV, 1968	EU	7	-
<i>Coptosoma scutellum</i> (GEOFFR., 1785)	P	94	-
<i>Acanthosoma haemorrhoidale</i> (L., 1758)	EU	1	-
<i>Thyreocoris scarabaeoides</i> (L., 1758)	M	10	-
<i>Cydnus atterrimus</i> (FORSTER, 1771)	P	1	2

I/B táblázat

Species		SÁR-h	NAGYEGED-h
<i>Canthophorus biguttatus</i> (L., 1758)	P(M)	-	3
<i>Canthophorus melanopterus</i> (HERR.-SCHAFF.)	P(M)	-	2
<i>Canthophorus dubius</i> (SCOP., 1763)	M	16	2
<i>Tritomegas sexmaculatus</i> (RAMBUR, 1842)	M	7	5
<i>Odontoscelis ralignosa</i> (L., 1761)	p	3	-
<i>Odontotarsus purpureolineatus</i> (ROSSI., 1790)	M	9	3
<i>Psacasta neglecta</i> (HERR.-SCHAFF., 1837)	M	2	-
<i>Eurygaster austriaca</i> (SCHRK., 1778)	p	5	2
<i>Eurygaster maura</i> (L., 1758)	p	13	7
<i>Eurygaster testudinaria</i> (GEOFFR., 1785)	p	2	-
<i>Vilpianus gallii</i> (WFF, 1902)	M	11	6
<i>Graphosoma lineatum</i> (L., 1758)	E	8	6
<i>Sciocoris microphthalmus</i> FLOR, 1860	EU	1	-
<i>Sciocoris cursitans</i> (FABR., 1794)	P-N	4	-
<i>Sciocoris deltocephalus</i> FfifB., 1861	M	2	-
<i>Sciocoris sulcatus</i> FfifB., 1851	M	3	2
<i>Dyroderes umbraculatus</i> (FABR., 1775)	M	2	-
<i>Aelia acuminata</i> (L., 1758)	P	35	9
<i>Aelia rostrata</i> (BOHEMAN, 1852)	E	3	1
<i>Aelia klugi</i> (HAHN, 1831)	E	-	2
<i>Neottiglossa leporina</i> (HERR.-SCHAFF., 1830)	EU	18	-
<i>Stagonomus bipunctatus</i> (L., 1758)	M	1	8
<i>Rubiconia intermedia</i> (WFF., 1811)	EU	1	-
<i>Staria lunata</i> (HAHN, 1835)	M	13	8
<i>Holcostethus (Penbalus) vernalis</i> (WFF., 1804)	P	5	2
<i>Holcostethus (Peribalus) sphacelatus</i> (FABR., 1775)	P(M)	-	1
<i>Palomena prasina</i> (L., 1761)	EU	1	-
<i>Anthemina lunulata</i> (GZ., 1778)	M	6	-
<i>Carpocoris purpureipennis</i> (DE GEER, 1773)	P	1	-
<i>Carpocoris pudicus</i> (PODA, 1761)	E	-	1
<i>Carpocoris fuscispinus</i> (BOH, 1850)	P-W	-	3
<i>Dolycoris baccaram</i> (L., 1758)	P	8	9
<i>Eurydema ventrale</i> KOLENATI, 1846	M	7	5
<i>Eurydema dominulus</i> (SCOP.)	Eu	-	2
<i>Eurydema oleraceum</i> (L., 1758)	P	14	-
<i>Bagrada stolata</i> HORV., 1936	M	1	-
<i>Rhaphigaster nebulosa</i> (PODA., 1761)	EU	1	

S-h: Sár-hillN-E-h: Nagy-Eged-hill

E: European faunal-element; H: Holarktic faunal-element; Kp: Cosmopolitan faunal-element; P-N: Palearctic North faunal-element;

Eu: Euro-Szibérián faunal-element; M: Mediterranean faunal-element; P: Palearctic faunal-element; P-W: Palearctic West faunal-element

<i>Table II. Number of species occurring in both sampling territories</i>	
Nabis feras (L., 1758)	EU
Nabis rugosus (L., 1758)	Eu
Capsodes gothicus (L., 1758)	P
Brachycoleus scriptus (FABR., 1803)	EU
Lasiacantha capucina (GERM., 1836)	M
Copium clavicorne (L., 1758)	M
Rhinocoris iracundus (PODA, 1761)	p
Phymata crassipes (FABR., 1775)	M
Ischnodemus sabuleti (FALL., 1829)	p
Gonoceras acuteangulatus (GZ., 1778)	EU
Syromastes rhombeus (L., 1767)	P
Coreus marginatus (L., 1758)	P
Spathocera lobata (HERR.-SCHAFF, 1804)	M
Alydus calcaratus (L., 1758)	EU
Camptopus lateralis (GERM., 1817)	M
Rhopalus parumpunctatus (SCHILL., 1817)	p
Rhopalus subrufus (GMEL., 1788)	Kp
Stictopleurus punctatonevrosus (GZ., 1778)	p
Stictopleurus abutilon (ROSSI, 1790)	EU
Corizus hyoscyami (L., 1758)	P
Canthophorus dubius (SCOP, 1763)	M
Cydnus atterimus (FORSTER, 1771)	P
Tritomegas sexmaculatus (RAMBUR, 1842)	M
Odontotarsus purpulineatus (ROSSI, 1790)	M
Eurygaster austriaca (SCHRK., 1778)	P
Eurygaster maura (L., 1758)	p
Vilpianus gallii (WFF., 1902)	M
Graphosoma lineatum (L., 1758)	E
Sciocoris sulcatus FIEB., 1861	M
Aelia acuminata (L., 1758)	P
Aelia rostrata (BOHEMAN, 1852)	E
Stagonomus bipunctatus (L., 1758)	M
Stada lunata (HAHN., 1835)	M
Holcostethus vernalis (WFF., 1804)	P
Eurydema ventrale KOLENATI, 1846	M
Dolycoris baccaram (L., 1758)	p

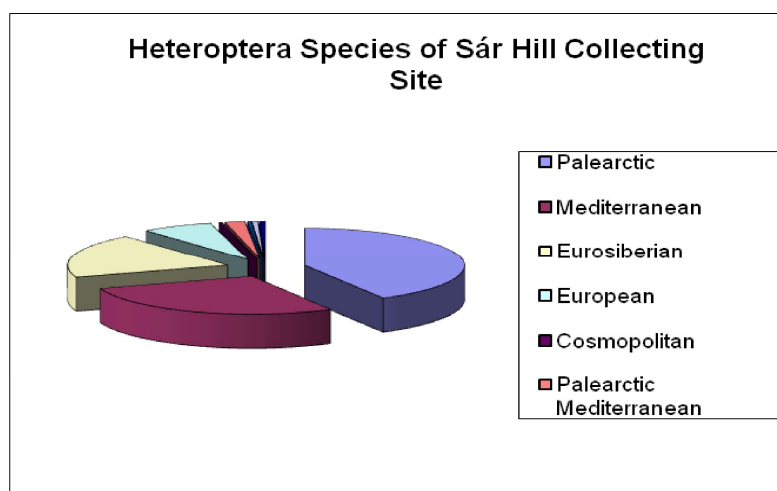
Materiai and methods

During our investigations the distribution of Heteroptera species according to the zoogeographical faunal centres has been analysed in the case of both collecting sites [Fig. 1.]

Determination of species was done by the help of the works of BENEDEK, P. (1969), HALÁSZFY, É. (1959), HEISS, E.-JOSIFOV, M. (1990), KIRICSENKO, A. H.

(1951), KIS, B. (1984), PICSKOV, V. G. (1965), SOÓS, Á. (1963), VÁSÁRHELYI, T. (1983 a, b), WAGNER, E. (1952), WAGNER, E. (1966).

On the basis of the authors' previous studies and the present investigations there were separated species which according to the classical zoogeographical ranging can be placed into the Palearctic faunal centrum, but on the basis of the above listed literature their further classification can also be done.

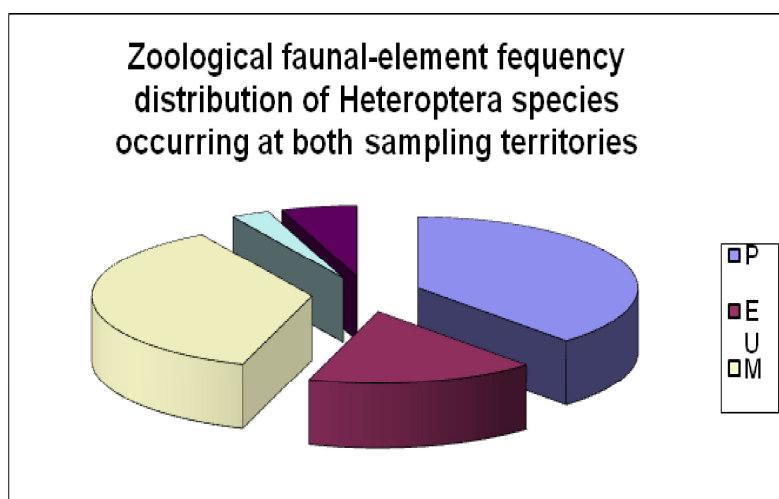
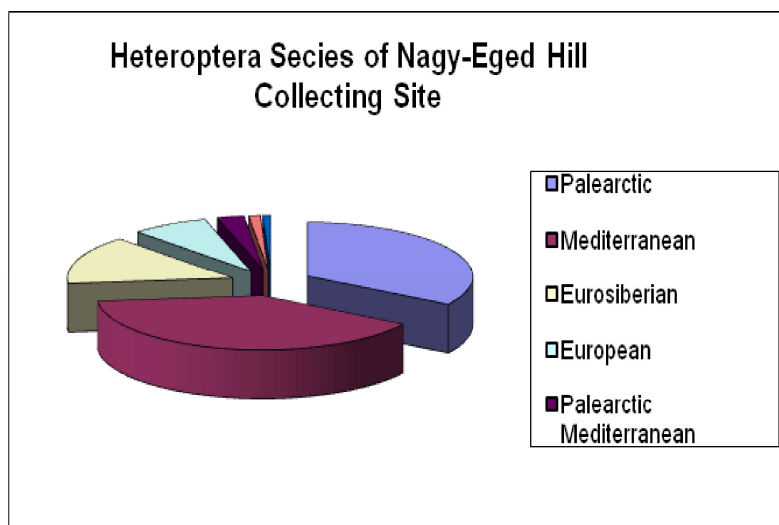


Results

The following „work name” was given to these faunal centruns: Palearctic (Northern), Palearctic (European) and palearctic (Mediterranean).

Exact description of these categories needs further faunal examinations. On the basis of these statements the faunas of the examined territories can be characterized in the following way: *Heteroptera* species found at the territory of Sár-hill can be ranged into 9 faunal centruns. The distribution of faunal element frequency among the different species is the following: Palearctic species 41.9% [Palearctic (Mediterranean) 2.0%; Palearctic (European) 0.3%], Mediterranean species 27.9% [Eurosiberian 19.3%, European 7.2%; cosmopolitan 0.3%]. (Fig.1.)

Heteroptera species found at the Nagy-Eged-hill belong to 8 faunal centruns. Distribution of faunal element frequency is the following: Mediterranean species 38%; Palearctic species 32.5%; Palearctic (Mediterranean) 2.52%) Palearctic (Western) 1.08%; Eurosiberian 14.08%; Eurosiberian (Northern) 0.72%; European 7.22%; cosmopolitan 2.88% (Fig. 2.).



On the basis of the results we can state that the two sampling territories, situated on the southern part of the North-Hungarian Medium High Mountain Ranges considering their microclimatic features and *Heteroptera* species can be characterised as a Submediterranean island.

The collected material is kept in the collection of Mátra

Museum, Gyöngyös and Károly Eszterházy College, Department of Zoology, Eger.

Összefoglalás

A Sár-hegy és a Nagy-Eged-hegy a Magyar Középhegység déli peremén húzódó „szubmediterrán szigetnek” tekinthetők. Ezt mikrolimatikus viszonyaik, a területek botanikai felmérései is egyaránt alátámasztják. Területén végzett

Heteropterológiai vizsgálatok, a begyűjtött fajok zoogeográfiai faunacentrum szerinti megoszlása is igazolja. Mind a két mintavételi területen magasnak ítéltető a palearktikus (mediterrán) és a mediterrán fajok részesedése.

References

- BENEDEK, P.** (1969): Poloskák VII. Heteroptera VII., Magyarország Állatvilága (Fauna Hungáriáé) – Fol. Ent. Hung. 17 (7): 1–86.
- BENEDEK, P.** (1969): A magyarországi Nabidae (Heteroptera) fajok lárváinak elterjedése és etológiai adatai. – Fol. Ent. Hung. 22: 475–578.
- FÖLDESSY, M.** (1991): A Sár-hegy Heteroptera faunájának állatföldrajzi vizsgálata. – Fol. Hist. Nat. Matr. 16: 71–73.
- FÖLDESSY, M.-VARGA, J.** (1995): A companson of the Heteroptera associations of plant communities exposed in the same way in the Bükk and the Mátra mountains. – Abstracts: 7th. European Ecological Congress p. 218.
- HALÁSZFY, E.** (1959): Heteroptera II. Poloskák II. – Magyarország Állatvilága (Fauna Hungáriáé) 17. (2): 1–87.
- HEISS, B.- JOSIFOV, M.** (1990): Vergleichende Untersuchung über Artenspektrum, Zoogeographie und Ökologie der Heteropteran. Fauna in Hochgebirgen Österreichs und Bulgariens. – Ber. Nat.-med. Ver. Innsbruck 77: 123–161.
- KRICSENKO, A. H.** (1951): Nasztojasie poluzsesztkokrülie evropejszkoj csaszti (Hemiptera). – Izd. Akad. Nauk. Kirg. SzSzsZR. Leningrad p: 1–400.
- KIS, B.** (1984): Fauna Republicii Socialite Romania. Insecta 8: Heteroptera Pastae Generaló Pentatomidae. – Acad. Rep. Soc. Rom. p: 1–216.
- PICSKOV, V. G.** (1965): Sitniki Szregnej Azsii. – Akad. Nauk. Kirg. SzSzsZR. Frunze p: 1–330.
- SOUTHWOOD, T.** (1984): Ökológiai módszerek különös tekintettel a rovarpopulációk tanulmányozására. – Mezogazd. Kiadó p: 1–134.
- SOÓS, Á.** (1963): Poloskák VIII. Heteroptera VIII. – Magyarország Állatvilága (Fauna Hungáriáé) 17 (8): 1–48.
- VÁSÁRHELYI, T.** (1983): Poloskák V. Heteroptera V. – Magyarország Állatvilága (Fauna Hungáriáé) 17 (5): 1–76.
- VÁSÁRHELYI, T.** (1983): Poloskák III. Heteroptera III. – Magyarország Állatvilága (Fauna Hungáriáé) 17 (3): 1–88.
- WAGNER, E.** (1952): Blindwanzen der Miriden. – Die Tierwelt Deutschlands 41: 1–218.
- WAGNER, E.** (1966): Wanzen oder Heteropeten I. Pentatomorpha. – Die Tierwelt Deutschlands 54: 1–235.